

April 10, 2015

Global Ecology

Announcements

- Quiz 8 now available
  - o Due Sunday, April 12<sup>th</sup>, 11:59 pm
- Volunteer Extra Credit Day: April 11<sup>th</sup>
  - o Biology Field Research Center
  - o 12pm- 2pm
  - o Sign-up on discussion board
- Exam 4: Monday April 13<sup>th</sup>
  - o Bring scantron, calculator
  - o Review document on Webcourses

Biosphere

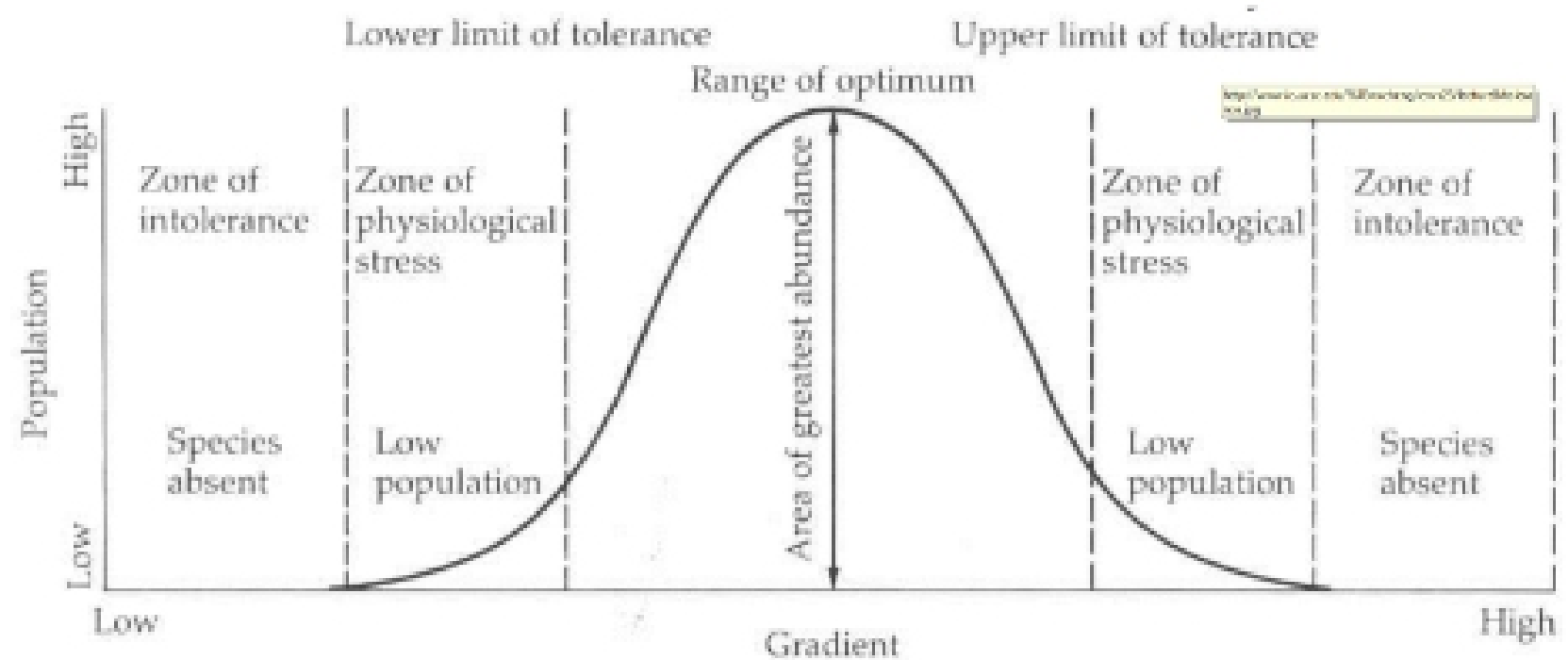
- All environments supporting life on Earth
- Atmosphere: air
- Hydrosphere: water
- Lithosphere: earth, ground, soil; terrestrial environments
- Abiotic factors affect global distribution of ecosystems
  - o Control global distribution due to different organisms having different tolerance levels
- All systems:
  - o Energy source
    - Only so much energy available in each system

- o Temperature
  - Organisms have preferred temperatures and will stay away from areas they can't tolerate
- o Water
  - All organisms need water for survival
- o Inorganic nutrients
  - Essential for all life processes
  - Have to be available in sufficient amounts for organisms to live in the environment
- Aquatic factors
- Terrestrial factors

### **Range of Tolerances**

- Physiological processes have “optimal environmental conditions” for physiological processes
  - o Deviations from optimum result in decrease in rate of process
  - o Organisms maintain constant temp or concentration of solutes
  - o Processes are affected by external factors
- Stress= condition resulting in decreased rate of physiological process caused by environmental change
  - o Stress over long periods of time decreases potential for organisms to survive, grow, or reproduce
- Organisms' ecological success
  - o Survival and reproduction

- o Organism have to finds the optimum range and live there



- o Availability of resources can be looked at with this graph
- o X-axis is gradient can be anything
  - Temperature, availability of food, water salinity, etc.
- o Y-axis is abundance of individuals in population
- o Want to know where the different zones are
  - **Expect to see this image on the exam**
- Range of tolerance can include:
  - o Abiotic factors
  - o Availability of resources

### Energy Sources

- Autotrophs= primary producers
  - o Create energy for other organism
    - Carried through trophic levels
  - o Convert initial energy source into energy useable by organisms
  - o Normally plants that create carbon compounds to be passed on